

Amendments to the Claims:

The following listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A ~~novel~~ heterogeneous catalytic composition comprising a solid support having deposited thereon a solid catalytically active material that is substantially ~~which is practically~~ insoluble in organic and aqueous ~~variety of~~ liquid media, the ~~said~~ solid catalytically active material consisting of at least one catalytically active anionic entity together ~~entities~~ with group IIA metal ions.
2. (Currently Amended) A heterogeneous catalytic composition ~~catalyst~~ as claimed in claim 1 wherein; the solid catalytically ~~catalytic~~ active material is molecularly well defined.
3. (Currently Amended) A heterogeneous catalytic composition ~~catalyst~~ as claimed in claim 1 wherein; the solid catalytically active material ~~entity~~ is deposited on the external and ~~the~~ pore surfaces of the solid support, pores of which are predominantly of diameter greater than about 20 \AA^0 .
4. (Currently Amended) A heterogeneous catalytic composition ~~catalyst~~ as claimed in claim 1 wherein; ~~the~~ pores of the solid support have ~~having~~ a pore diameters ranging from about $3 - 3000 \text{ \AA}^0$.
5. (Currently Amended) A heterogeneous catalytic composition ~~catalyst~~ as claimed in claim 1 wherein; the solid support is a chemically inactive solid material.
6. (Currently Amended) A ~~catalyst~~ heterogeneous catalytic composition as claimed in claim 1 wherein; the ~~poreous~~ solid support is porous and is powder, granules, flakes or pellets ~~pellets~~ of regular or irregular shapes, sheets, monolith, ropes or ~~and~~ woven fabric of fibrous solids.

7. (Currently Amended) A ~~eatalyst~~ heterogeneous catalytic composition as claimed in claim 1 wherein; the ~~perous~~-solid support is porous and is a mechanically robust and thermally stable solid, insoluble in reaction media selected from organic, aqueous, fluorous, non-aqueous ionic liquids and supercritical fluid phases.

8. (Currently Amended) A ~~eatalyst~~ heterogeneous catalytic composition as claimed in claim 1 wherein; the catalytically active anionic entity is insoluble in reaction media, ~~which are~~ selected from organic, aqueous, fluorous ~~flours~~, non-aqueous ionic liquids and supercritical fluid phases.

9. (Currently Amended) A ~~eatalyst~~ heterogeneous catalytic composition as claimed in claim 1 wherein; the solid catalytically active ~~solid~~-material is a thermally stable solid material having a melting point greater than 100⁰C.

10. (Currently Amended) A ~~eatalyst~~ heterogeneous catalytic composition as claimed in claim 1 wherein; the solid catalytically active material is a non-subliming solid.

11. (Currently Amended) A ~~eatalyst~~ heterogeneous catalytic composition as claimed in claim 1 wherein the comprising of solid support having deposited thereon the solid catalytically active material ~~entity which~~ remains as a stable composite solid in gas, liquid and gas-liquid phases.

12. (Currently Amended) A ~~eatalyst~~ heterogeneous catalytic composition as claimed in claim 11 wherein; the liquid phase is selected from organic, aqueous, fluorous ~~flours~~, non-aqueous ionic liquids and supercritical fluid phases ~~or and mixtures~~ mixture thereof containing reactants, products or ~~and~~ promoters.

13. (Currently Amended) A ~~eatalyst~~ heterogeneous catalytic composition as claimed in claim 1; wherein the heterogeneous catalytic composition ~~which~~ remains as a physically stable composite solid in gas or liquid phases over a temperature range of -78 to 300⁰C.

14. (Currently Amended) A ~~eatalyst~~ heterogeneous catalytic composition as claimed in claim 1; wherein the heterogeneous catalytic composition ~~which~~ remains as a physically stable composite solid in gas or liquid phases over ~~pressures~~ pressure ranging from 5 to 5000 psi.

15. (Currently Amended) A ~~eatalyst~~ heterogeneous catalytic composition as claimed in claim 1 wherein; the group IIA metal ion ~~used~~ is a cation having +2 charge.

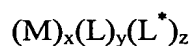
16. (Currently Amended) A ~~eatalyst~~ heterogeneous catalytic composition as claimed in claim 1 wherein; the group IIA metal ~~used~~ is selected from calcium, strontium, barium and mixtures thereof.

17. (Currently Amended) A ~~eatalyst~~ heterogeneous catalytic composition as claimed in claim 1 wherein; the group IIA metal ~~used~~ is selected independently or in combination with other group IIA metals.

18. (Currently Amended) A ~~eatalyst~~ heterogeneous catalytic composition as claimed in claim 1 wherein; the catalytically active anionic entity is an anion having two or more negative charges.

19. (Currently Amended) A ~~eatalyst~~ heterogeneous catalytic composition as claimed in claim 1 wherein; the catalytically active anionic entity is independently selected from metal complexes, quaternary compounds, metaloxoanions, polyoxometallates and combinations thereof.

20. (Currently Amended) A ~~eatalyst~~ heterogeneous catalytic composition as claimed in claim 19 wherein; the catalytically active anionic entity is a metal complex ~~complexes~~ having a general formula



wherein M is a catalytic metal atom or an ion of a coordination complex and is a transition metal selected from group IIIB, IVB, VB, VIB, VIIB, IB and ~~or~~ IIB of the periodic table of

elements ~~and is selected independently~~, x is ranging from 1 to 60, L is selected from aliphatic, aromatic and heterocyclic ~~compounds compound~~ containing at least one ~~substituent radical~~ from O, N, S, Se, Te, P, As, Sb, Bi, Si, olefin, ~~and carbene that have having~~ attached thereto ~~an oxy, alkyl, aryl, arylalkyl, alkylaryl, alkoxy-aleoxy, aryloxy-aryloxy, or cycloalkyl group~~ bearing at least one or more negatively charged functional groups independently selected from $-\text{SO}_3^-$, $-\text{SO}_2^-$, $-\text{PO}_3^{2-}$, $-\text{COO}^-$, $-\text{O}^-$, AsO_3^{2-} and $-\text{S}^-$, y is at least 1, ~~L*~~ is ~~a radical~~ selected from organic anion, inorganic anion and coordinating ~~compounds compound~~ containing at least one ~~substituent radical~~ from O, N, S, Se, Te, P, As, Sb, Bi, Si, olefin, ~~and carbene, =C:~~ ~~that have having~~ attached thereto ~~an oxy, alkyl, aryl, arylalkyl, alkylaryl, alkoxy-aleoxy, aryloxy-aryloxy, or cycloalkyl group~~ and z is Z is ranging from 0 to 7.

21. (Currently Amended) A ~~catalyst~~ heterogeneous catalytic composition as claimed in claim 19 wherein; the catalytically active anionic entity is a quaternary compound is having a general formula



wherein; I = 4 for $Y^+ = \text{N}^+, \text{P}^+, \text{As}^+$; I = 3 for $Y^+ = \text{S}^+$ and R^* is selected independently ~~independently~~ from alkyl, aryl, arylalkyl, alkylaryl, ~~alkoxy-aleoxy, aryloxy-aryloxy, and~~ cycloalkyl bearing at least one or more negatively charged functional groups independently selected from $-\text{SO}_3^-$, $-\text{SO}_2^-$, $-\text{PO}_3^{2-}$, $-\text{COO}^-$, $-\text{O}^-$, AsO_3^{2-} and $-\text{S}^-$, and Z is an anion selected from organic anion, inorganic anion and coordination complex anion.

22. (Currently Amended) A ~~catalyst~~ heterogeneous catalytic composition as claimed in claim 1 wherein; the solid insoluble catalytically active material is deposited on the solid support along with at least one optionally comprising catalytically inert additive.

23. (Currently Amended) A ~~catalyst~~ heterogeneous catalytic composition as claimed in claim 22 wherein; the catalytically inert additive is an anion having two or more negative charges.

24. (Currently Amended) A ~~catalyst~~heterogeneous catalytic composition as claimed in claim 22 wherein; the catalytically inert additive is an anion, which is independently selected from organic anions, inorganic anions ~~or~~ and combinations in combination thereof.

25. (Currently Amended) A ~~catalyst~~heterogeneous catalytic composition as claimed in claim 22 wherein; the catalytically inert additive is selected from ligand compounds ~~that wherein, ligand compounds~~ contain at least one substituent radical from O, N, S, Se, Te, P, As, Sb, Bi, Si, olefin, and carbene that have ~~having~~ attached thereto an oxy, alkyl, aryl, arylalkyl, alkylaryl, alkoxy-aleoxy, aryloxy-aryloxy, or cycloalkyl group bearing at least one or more negatively charged functional groups independently selected from $-\text{SO}_3^-$, $-\text{SO}_2^-$, $-\text{PO}_3^{2-}$, $-\text{COO}^-$, $-\text{O}^-$, AsO_3^{2-} and $-\text{S}^-$.

26. (Currently Amended) A ~~catalyst~~heterogeneous catalytic composition as claimed in claim 1 wherein; an ~~the~~ amount of the catalytically active anionic entity employed is 40 % weight or less of the heterogeneous catalytic composition.

27. (Currently Amended) A ~~catalyst~~heterogeneous catalytic composition as claimed in claim 22 ~~4~~ wherein an ~~the~~ amount of the catalytically inert additive employed is in the proportion of 0 to 200 weight % ~~200 weight %~~ of the catalytically active anionic entity.

28. (Currently Amended) A ~~catalyst~~heterogeneous catalytic composition as claimed in claim 1 which; is ~~can be~~ employed to catalyze reactions in a gas phase or in a slurry phase.

29. (Currently Amended) A ~~catalyst~~heterogeneous catalytic composition as claimed in claim 1 further comprising a film of high boiling liquid deposited on the solid support-catalyst.

30. (Currently Amended) A ~~novel~~ heterogeneous catalytic composition comprising a solid support having deposited thereon a solid catalytically active material that

is substantially ~~which is practically~~ insoluble in organic and aqueous ~~variety of~~ liquid media, the said-solid catalytically active material consisting of at least one catalytically active anionic entity ~~entities~~ and at least one catalytically inactive anionic additive that are together with group IIA metal ions.

31. (Currently Amended) A ~~eatalyst~~ heterogeneous catalytic composition as claimed in claim 30 wherein; the solid catalytically ~~eatalytic~~ active material is molecularly well defined.

32. (Currently Amended) A ~~eatalyst~~ heterogeneous catalytic composition as claimed in claim 30 wherein; the solid catalytically active material ~~entity~~ is deposited on the external and ~~the~~ pore surfaces of the solid support, pores of which are predominantly of diameter greater than about 20 \AA^0 .

33. (Currently Amended) A ~~eatalyst~~ heterogeneous catalytic composition as claimed in claim 30 wherein; the pores of the solid support have ~~having~~ a pore diameters ranging from about $3 - 3000 \text{ \AA}^0$.

34. (Currently Amended) A ~~eatalyst~~ heterogeneous catalytic composition as claimed in claim 30 wherein; the solid support is a chemically inactive solid material.

35. (Currently Amended) A ~~eatalyst~~ heterogeneous catalytic composition as claimed in claim 30 wherein; the ~~porous~~-solid support is porous and is powder, granules, flakes or pellets ~~pallets~~ of regular or irregular shapes, sheets, monolith, ropes or ~~and~~ woven fabric of fibrous solids.

36. (Currently Amended) A ~~eatalyst~~ heterogeneous catalytic composition as claimed in claim 30 wherein; the ~~porous~~-solid support is porous and is a mechanically robust and thermally stable solid, insoluble in reaction media selected from organic, aqueous, fluorous, non-aqueous ionic liquids and supercritical fluid phases.

37. (Currently Amended) A ~~eatalyst~~ heterogeneous catalytic composition as claimed in claim 30 wherein; the catalytically active anionic entity is insoluble in reaction media, ~~which are~~ selected from organic, aqueous, fluorous ~~flours~~, non-aqueous ionic liquids and supercritical fluid phases.

38. (Currently Amended) A ~~eatalyst~~ heterogeneous catalytic composition as claimed in claim 30 wherein; the solid catalytically active ~~solid~~ material is a thermally stable solid material having a melting point greater than 100 °C.

39. (Currently Amended) A ~~eatalyst~~ heterogeneous catalytic composition as claimed in claim 30 wherein; the solid catalytically active material is a non-subliming solid.

40. (Currently Amended) A ~~eatalyst~~ heterogeneous catalytic composition as claimed in claim 30 wherein the comprising of solid support having deposited thereon the solid catalytically active material ~~entity which~~ remains as a stable composite solid in gas, liquid and gas-liquid phases.

41. (Currently Amended) A ~~eatalyst~~ heterogeneous catalytic composition as claimed in claim 40 wherein; the liquid phase is selected from organic, aqueous, fluorous ~~flours~~, non-aqueous ionic liquids and supercritical fluid phases and mixtures or mixture thereof containing reactants, products or ~~and~~ promoters.

42. (Currently Amended) A ~~eatalyst~~ heterogeneous catalytic composition as claimed in claim 30; wherein the heterogeneous catalytic composition ~~which~~ remains as a physically stable composite solid in gas or liquid phases over a temperature range of -78 to 300°C.

43. (Currently Amended) A ~~eatalyst~~ heterogeneous catalytic composition as claimed in claim 30; wherein the heterogeneous catalytic composition ~~which~~ remains as a physically stable composite solid in gas or liquid phases over pressures ~~pressure~~ ranging from 5 to 5000 psi.

44. (Currently Amended) A ~~eatalyst~~heterogeneous catalytic composition as claimed in claim 30 wherein, ~~the~~ group IIA metal ~~ion used~~ is a cation having +2 charge.

45. (Currently Amended) A ~~eatalyst~~heterogeneous catalytic composition as claimed in claim 30 wherein, ~~the~~ group IIA metal ~~used~~ is selected from calcium, strontium, barium and mixtures thereof.

46. (Currently Amended) A ~~eatalyst~~heterogeneous catalytic composition as claimed in claim 30 wherein, ~~the~~ group IIA metal ~~used~~ is selected independently or in combination with other group IIA metals.

47. (Currently Amended) A ~~eatalyst~~heterogeneous catalytic composition as claimed in claim 30 wherein, ~~the~~ catalytically active anionic entity is an anion having two or more negative charges.

48. (Currently Amended) A ~~eatalyst~~heterogeneous catalytic composition as claimed in claim 30 wherein, ~~the~~ catalytically active anionic entity is independently selected from metal complexes, quaternary compounds, metaloxoanions, polyoxometallates and combinations thereof.

49. (Currently Amended) A ~~eatalyst~~heterogeneous catalytic composition as claimed in claim 30 wherein, ~~an the~~ amount of ~~the~~ catalytically active anionic entity employed is 40 % weight or less of the catalyst.

50. (Currently Amended) A ~~eatalyst~~heterogeneous catalytic composition as claimed in claim 30 wherein ~~an the~~ amount of ~~the~~ catalytically inert additive employed is 0 to 200 weight % ~~200 weight %~~ of ~~the~~ catalytically active anionic entity.

51. (Currently Amended) A ~~eatalyst~~heterogeneous catalytic composition as claimed in claim 30 which, ~~is can be~~ employed to catalyze reactions in gas phase or in slurry phase.

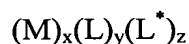
52. (Currently Amended) A ~~eatalyst~~ heterogeneous catalytic composition as claimed in claim 30 further comprising a film of high boiling liquid deposited on the solid support-eatalyst.

53. (Currently Amended) A process for preparing a catalytically active composition comprising a solid support-material, said process comprising interacting a solution consisting of a catalytically inactive additive and a catalytically active entity with a solution of group IIA metal cation and obtaining a precipitate,

_____ wherein the catalytically inactive additive is independently selected from anions having at least two or more negative charges, ligand compounds containing at least one substituent radical from O, N, S, Se, Te, P, As, Sb, Bi, Si, and olefin that have, ~~having~~ attached thereto an oxy, alkyl, aryl, arylalkyl, alkylaryl, alkoxy-aleoxy, aryloxy-aryloxy, or cycloalkyl group bearing at least one or more negatively charged functional groups independently selected from $-\text{SO}_3^-$, $-\text{SO}_2^-$, $-\text{PO}_3^{2-}$, $-\text{COO}^-$, $-\text{O}^-$, AsO_3^{2-} and $-\text{S}^-$, and combinations ~~combination~~ thereof;

_____ wherein the catalytically active entity is independently selected from metal complexes, quaternary compounds, metal oxo anions, polyoxometallates and combinations thereof,

_____ wherein the metal complexes have ~~is having~~ a general formula



wherein M is a catalytic metal atom or an ion of a coordination complex and is a transition metal selected from group IIIB, IVB, VB, VIB, VIIB, IB and ~~or~~ IIB of the periodic table of elements, x is ranging from 1 to 60, L is selected from aliphatic, aromatic and heterocyclic compounds ~~compound~~ containing at least one substituent radical from O, N, S, Se, Te, P, As, Sb, Bi, Si, olefin, and carbene that have ~~having~~ attached thereto an oxy, alkyl, aryl, arylalkyl, alkylaryl, alkoxy-aleoxy, aryloxy-aryloxy, or cycloalkyl group bearing at least one or more negatively charged functional groups independently selected from $-\text{SO}_3^-$, $-\text{SO}_2^-$, $-\text{PO}_3^{2-}$, $-\text{COO}^-$,

-O⁻, AsO₃²⁻ and -S⁻, y is at least 1, L^{*} is ~~radical~~ selected from organic anion, inorganic anion and coordinating ~~compounds compound~~ containing at least one substituent ~~radical~~ from O, N, S, Se, Te, P, As, Sb, Bi, Si, olefin, and carbene that have, =C: having attached thereto an oxy, alkyl, aryl, arylalkyl, alkylaryl, alkoxy-aleoxy, aryloxy-aryloxy, or cycloalkyl group, z is ranging from 0 to 7 and

wherein the quaternary ammonium compound has a general formula



wherein, I = 4 for Y⁺ = N⁺, P⁺, As⁺; I = 3 for Y⁺ = S⁺ and R^{*} is selected independently from alkyl, aryl, arylalkyl, alkylaryl, alkoxy-aleoxy, aryloxy-aryloxy, and cycloalkyl bearing at least one or more negatively charged functional groups independently selected from -SO₃⁻, -SO₂⁻, -PO₃²⁻, -COO⁻, -O⁻, AsO₃²⁻ and -S⁻ and Z is an anion selected from organic anion, inorganic anion and ~~or~~ coordination complex anion; and

wherein the group IIA H-A metal cation is selected from compounds of Ca⁺, Sr⁺ and Ba⁺.

54. (Currently Amended) A process as claimed in claim 53 wherein, the reaction is carried out at a ~~in the~~ temperature ranging from -70 to 200 °C ~~preferably between -5 to 100~~ °C.

55. (Currently Amended) A process as claimed in claim 53 wherein, an the amount of the catalytically active entity employed is 40 % weight or less of the catalytically active composition.

56. (Currently Amended) A process as claimed in claim 53 wherein, an the amount of the catalytically inert additive employed is in the proportion of 0 to 200 weight % ~~200 weight % of the~~ catalytically active entity.

57. (Currently Amended) A process as claimed in claim 53 wherein; the catalytically active composition is catalyst ~~can be~~ employed to catalyze reactions in a gas phase or in a slurry phase.

58. (Currently Amended) A process as claimed in claim 53 wherein; a film of high boiling liquid is ~~preferably~~ deposited on the catalytically active composition ~~solid catalyst~~.

59. (Currently Amended) A process for the preparation of a heterogeneous catalytic formulation as a solid composite comprised ~~comprising~~ of a porous solid support having deposited thereon a catalytically active solid, said process comprising suspending the porous insoluble ~~insoluble~~ solid support in a liquid phase in which the porous solid support is insoluble to form a suspension, simultaneously adding to the suspension ~~to which~~ a solution of a catalytically inert additive, and a catalytically active entity and a solution of group IIA metal cation ~~are added simultaneously with vigorous agitation, and allowing and allowed~~ to age for 1 to 48 hours,

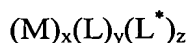
wherein; the porous solid support is a mechanically robust and thermally stable solid in reaction media selected from organic, aqueous, fluoruous, non-aqueous ionic liquids and supercritical fluid phases, has ~~having~~ a mean pore diameter in the range of about 3-3000 Å⁰ and is in a form of ~~existing as~~ powder, granules, flakes or pellets ~~pallets~~ of regular or irregular shapes, sheets, monolith, ropes or ~~and~~ woven fabric of fibrous solids,

wherein and the catalytically inert ~~inactive~~ additive is independently selected from anions having at least two or more negative charges including selected from organic anions, inorganic anions, or a compound containing at least one substituent radical from ~~from~~ O, N, S, Se, Te, P, As, Sb, Bi, Si, olefin, and carbene ~~that have~~ having attached thereto an oxy, alkyl, aryl, arylalkyl, alkylaryl, alkoxy-aleoxy, aryloxy-aryloxy, or ~~or~~ cycloalkyl group bearing at least one or more negatively charged functional groups independently selected from -SO₃⁻,

$-\text{SO}_2^-$, $-\text{PO}_3^{2-}$, $-\text{COO}^-$, $-\text{O}^-$, AsO_3^{2-} and $-\text{S}^-$,

wherein the catalytically active entity is independently selected from metal complexes, quaternary compounds, metaloxoanions, polyoxometallates and combinations,

wherein the metal complexes ~~have~~ having a general formula



wherein M is a catalytic metal atom or an ion of a coordination complex and is a transition metal selected from group IIIB, IVB, VB, VIB, VIIB, IB and ~~or~~ IIB of the periodic table of elements, x is ranging from 1 to 60, L is selected from aliphatic, aromatic and heterocyclic compounds ~~compound~~ containing at least one substituent radical from O, N, S, Se, Te, P, As, Sb, Bi, Si, olefin, and carbene that have ~~having~~ attached thereto an oxy, alkyl, aryl, arylalkyl, alkylaryl, alkoxy-aleoxy, aryloxy-aryloxy, or cycloalkyl group bearing at least one or more negatively charged functional groups independently selected from $-\text{SO}_3^-$, $-\text{SO}_2^-$, $-\text{PO}_3^{2-}$, $-\text{COO}^-$, $-\text{O}^-$, AsO_3^{2-} and $-\text{S}^-$, y is at least 1, L^* is ~~a radical~~ selected from organic anion, inorganic anion and coordinating compounds ~~compound~~ containing at least one substituent radical from O, N, S, Se, Te, P, As, Sb, Bi, Si, olefin, and carbene that have, $=\text{C}:$ ~~having~~ attached thereto an oxy, alkyl, aryl, arylalkyl, alkylaryl, alkoxy-aleoxy, aryloxy-aryloxy, or cycloalkyl group, z is ranging from 0 to 7, and

wherein the quaternary ammonium compound has a general formula



wherein, $I = 4$ for $\text{Y}^+ = \text{N}^+$, P^+ , As^+ ; $I = 3$ for $\text{Y}^+ = \text{S}^+$ and R^* is selected independently from alkyl, aryl, arylalkyl, alkylaryl, alkoxy-aleoxy, aryloxy-aryloxy, and cycloalkyl bearing at least one or more negatively charged functional groups independently selected from the group consisting of $-\text{SO}_3^-$, $-\text{SO}_2^-$, $-\text{PO}_3^{2-}$, $-\text{COO}^-$, $-\text{O}^-$, AsO_3^{2-} and $-\text{S}^-$, and Z is an anion selected from organic anion, inorganic anion and coordination complex anion and

_____ wherein the group IIA metal cation is selected from compounds of Ca^{2+} , Sr^{2+} and Ba^{2+} .

60. (Currently Amended) A process as claimed in claim 59 wherein, the reaction is carried out in a the temperature ranging from -70 to $200\text{ }^{\circ}\text{C}$ ~~preferably between -5 to $100\text{ }^{\circ}\text{C}$.~~

61. (Currently Amended) A process as claimed in claim 59 wherein, the solution of the group IIA metal cation ~~solvent used~~ is selected from aqueous, water miscible organic and mixture ~~mixtures~~ thereof.

62. (Currently Amended) A process as claimed in claim 59 wherein, the solution of catalytically inert additive and catalytically active entity and the ~~a~~ solution of group IIA metal cation are added simultaneously over a period of 10 to 1500 min.

63. (Currently Amended) A process as claimed in claim 59 wherein, the solid composite catalyst is recovered by centrifugation, decantation or, gravity settling, ~~or other techniques of solid liquid separation~~ and solids are dried subsequently in a vacuum.

64. - 87. (Canceled).

88. (Currently Amended) A process for the preparation of a heterogeneous catalytic formulation as a solid composite comprised ~~comprising of~~ a porous solid support having deposited thereon a catalytically active solid, said process comprising impregnating the porous solid support with a ~~the~~ catalytically active entity and a ~~the~~ catalytically inert additive followed by drying to obtain a dried porous solid support, adding the dried porous solid support having deposited thereon the catalytically active entity and the catalytically inert additive ~~is added to a solution of~~ a group IIA metal compound, with simultaneous agitation, and aging the suspension ~~is aged for~~ 1 to 48 hours with agitation,

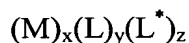
_____ wherein the porous solid support is a mechanically robust and thermally stable solid in reaction media selected from organic, aqueous, fluorous, non-aqueous ionic liquids and

supercritical fluid phases, has ~~having~~ a mean pore diameter in the range of about 3-3000 Å⁰ and is in a form of existing as powder, granules, flakes or ~~pellets~~ ~~pallets~~ of regular or irregular shapes, sheets, monolith, ropes or ~~and~~ woven fabric of fibrous solids and

wherein the catalytically ~~inert~~ ~~inactive~~ additive is independently selected from anions having at least two or more negative charges including ~~which may be~~ organic anions, inorganic anions, or a compound containing at least one substituent ~~radical from~~ ~~form~~ O, N, S, Se, Te, P, As, Sb, Bi, Si, olefin, and carbene that have ~~having~~ attached thereto an oxy, alkyl, aryl, arylalkyl, alkylaryl, alkoxy ~~aleoxy~~, aryloxy ~~arlyoxy~~, or cycloalkyl group bearing at least one or more negatively charged functional groups independently selected from -SO₃⁻, -SO₂⁻, -PO₃²⁻, -COO⁻, -O⁻, AsO₃²⁻ and -S⁻;

wherein the catalytically active entity is independently selected from metal complexes, quaternary compounds, metal oxo anions and polyoxometallates and ~~or~~ combinations thereof,

wherein the metal complexes have ~~having~~ a general formula



wherein M is a catalytic metal atom or an ion of coordination complex and is a transition metal selected from group IIIB, IVB, VB, VIB, VIIB, IB and ~~or~~ IIB of the periodic table of elements, x is from 1 to 60, L is an aliphatic, aromatic or ~~and~~ heterocyclic compound ~~compounds~~ containing at least one substituent ~~radical from~~ O, N, S, Se, Te, P, As, Sb, Bi, Si, olefin, and carbene that have ~~having~~ attached thereto an oxy, alkyl, aryl, arylalkyl, alkylaryl, alkoxy ~~aleoxy~~, aryloxy ~~arlyoxy~~, or cycloalkyl group bearing at least one or more negatively charged functional groups independently selected from -SO₃⁻, -SO₂⁻, -PO₃²⁻, -COO⁻, -O⁻, AsO₃²⁻ and -S⁻, y is at least 1, L* is ~~a radical~~ selected from organic anion, inorganic anion and coordinating compound containing at least one substituent ~~radical from~~ O, N, S, Se, Te, P, As, Sb, Bi, Si, olefin, and carbene that have, =C: ~~having~~ attached thereto an oxy, alkyl,

aryl, arylalkyl, alkylaryl, alkoxy-aleoxy, aryloxy-aryloxy, or cycloalkyl group, z is from 0 to 7 and

wherein the quaternary ammonium compound has a general formula



wherein; I = 4 for $Y^+ = N^+, P^+, As^+$; I = 3 for $Y^+ = S^+$ and R^* is selected independently from alkyl, aryl, arylalkyl, alkylaryl, alkoxy-aleoxy, aryloxy-aryloxy, or cycloalkyl bearing at least one or more negatively charged functional groups independently selected from $-SO_3^-$, $-SO_2^-$, $-PO_3^{2-}$, $-COO^-$, $-O^-$, AsO_3^{2-} and $-S^-$ and Z is an anion selected from organic anion, inorganic anion or coordination complex anion, and

wherein the group IIA metal cation is ~~are~~ selected from compounds of Ca^{2+} , Sr^{2+} and Ba^{2+} .

89. (Currently Amended) A process as claimed in claim 88, wherein the process is carried out in a ~~the~~ temperature ranging from -70 to $200^{\circ}C$ ~~preferably between -5 to $100^{\circ}C$.~~

90. (Currently Amended) A process as claimed in claim 88 wherein; the solution of the group IIA compound includes a solvent that is aqueous, water miscible organic or a mixture thereof.

91. (Currently Amended) A process as claimed in claim 88 wherein; the porous solid support having deposited thereon the catalytically active entity and the catalytically inert additive is added to the ~~a~~ solution of group IIA metal compound, with simultaneous agitation, over a period of 10 to 1500 min.

92. (Currently Amended) A process as claimed in claim 88 wherein; the solid composite catalyst is recovered by centrifugation, decantation, or gravity settling, ~~or other techniques of solid liquid separation and solids~~ are dried subsequently in a vacuum.

93. (Currently Amended) A process for the preparation of a heterogeneous catalytic formulation as a solid composite comprised ~~comprising~~ of a porous solid support

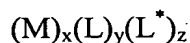
having deposited thereon a catalytically active solid, said process comprising impregnating is ~~characterized by impregnation of the porous solid~~ support with a solution of a catalytically inactive additive and a catalytically active entity, followed by drying and suspending the porous solid support having deposited thereon the catalytically inactive additive and the catalytically active entity in a water immiscible solvent ~~and adding to which~~ a solution of group IIA metal compound ~~solution is added~~ with vigorous agitation and concurrent removal of low boiling or azeotropic fraction of solvent, and aging the suspension ~~is allowed to age~~ for 1 to 48 hours,

 wherein the porous solid support is a mechanically robust and thermally stable solid in reaction media selected from organic, aqueous, fluoruous, non-aqueous ionic liquids and supercritical fluid phases, ~~has having~~ a mean pore diameter in the range of about 70-3000 Å⁰ and is in a form of ~~existing as~~ powder, granules, flakes or pellets ~~pallets~~ of regular or irregular shapes, sheets, monolith, ropes or ~~and~~ woven fabric of fibrous solids and

 wherein the catalytically inactive additive is independently selected from anions having at least two or more negative charges including ~~which may be~~ organic anions, inorganic anions, or a compound containing at least one substituent ~~radical from form~~ O, N, S, Se, Te, P, As, Sb, Bi, Si, olefin, and carbene that have ~~having~~ attached thereto an oxy, alkyl, aryl, arylalkyl, alkylaryl, alkoxy ~~aleoxy~~, aryloxy ~~arlyoxy~~, or cycloalkyl group bearing at least one or more negatively charged functional groups independently selected from -SO₃⁻, -SO₂⁻, -PO₃²⁻, -COO⁻, -O⁻, AsO₃²⁻ and -S⁻;

 wherein the catalytically active entity is independently selected from metal complexes, quaternary compounds, metal oxo anions and polyoxometallates and ~~or~~ combinations thereof,

 wherein the metal complexes have ~~having~~ a general formula



wherein M is a catalytic metal atom or an ion of coordination complex and is a transition metal selected from group IIIB, IVB, VB, VIB, VIIB, IB and ~~or~~ IIB of the periodic table of elements, x is from 1 to 60, L is an aliphatic, aromatic or ~~and~~ heterocyclic compound ~~compounds~~ containing at least one substituent radical from O, N, S, Se, Te, P, As, Sb, Bi, Si, olefin, and carbene that have ~~having~~ attached thereto an oxy, alkyl, aryl, arylalkyl, alkylaryl, alkoxy-aleoxy, aryloxy-aryloxy, or cycloalkyl group bearing at least one or more negatively charged functional groups independently selected from $-\text{SO}_3^-$, $-\text{SO}_2^-$, $-\text{PO}_3^{2-}$, $-\text{COO}^-$, $-\text{O}^-$, AsO_3^{2-} and $-\text{S}^-$, y is at least 1, L^* is ~~radical~~ selected from organic anion, inorganic anion and coordinating compound containing at least one substituent radical from O, N, S, Se, Te, P, As, Sb, Bi, Si, olefin, and carbene that have, $=\text{C}: \text{having}$ attached thereto an oxy, alkyl, aryl, arylalkyl, alkylaryl, alkoxy-aleoxy, aryloxy-aryloxy, or cycloalkyl group, z is from 0 to 7, and _____ wherein the quaternary ammonium compound has a general formula



wherein, $I = 4$ for $\text{Y}^+ = \text{N}^+$, P^+ , As^+ ; $I = 3$ for $\text{Y}^+ = \text{S}^+$ and R^* is selected independently from alkyl, aryl, arylalkyl, alkylaryl, alkoxy-aleoxy, aryloxy-aryloxy, or cycloalkyl bearing at least one or more negatively charged functional groups independently selected from $-\text{SO}_3^-$, $-\text{SO}_2^-$, $-\text{PO}_3^{2-}$, $-\text{COO}^-$, $-\text{O}^-$, AsO_3^{2-} and $-\text{S}^-$ and Z is anion selected from organic anion, inorganic anion or coordination complex anion, and

_____ wherein the group IIA metal compound ~~ation is~~ ~~are~~ selected from compounds of Ca^{2+} , Sr^{2+} and Ba^{2+} .

94. (Currently Amended) A process as claimed in claim 93 wherein the process is carried out in a ~~the~~ temperature ranging from -70 to 200°C .

95. (Currently Amended) A process as claimed in claim 93 wherein, a ~~the~~ solvent employed to form a solution of the group IIA metal compound ~~ion~~ is aqueous, water miscible organic or a mixture thereof.

96. (Currently Amended) A process as claimed in claim 93 wherein, the ~~solvent employed is~~ water immiscible organic solvent, ~~has a~~ having boiling point in ~~a the range of~~ 40 to 200 °C.

97. (Currently Amended) A process according to claim 93 wherein, the solid composite catalyst is recovered by centrifugation, decantation or gravity settling, ~~or other techniques of solid liquid separation~~ and solids are dried subsequently in a vacuum.

98. (Currently Amended) A process for the preparation of a heterogeneous catalytic formulation as a solid composite comprising ~~depositing of porous solid support having deposited thereon~~ a group IIA metal compound on a porous solid support followed by drying and suspending the porous solid support having deposited thereon the group IIA metal compound in a water immiscible solvent to which a solution of a catalytically active entity and a catalytically inactive additive is added with vigorous agitation and concurrent removal of low boiling or azeotropic fraction of solvent, and aging the suspension ~~is allowed to age for~~ 1 to 48 hours,

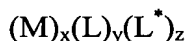
 wherein the porous solid support is a mechanically robust and thermally stable solid in reaction media selected from organic, aqueous, fluoruous, non-aqueous ionic liquids and supercritical fluid phases, ~~has~~ having a mean pore diameter in the range of about 3-3000 Å⁰ and is in a form of ~~existing as~~ powder, granules, flakes or ~~pellets~~ pallets of regular or irregular shapes, sheets, monolith, ropes or ~~and~~ woven fabric of fibrous solids and

 wherein the catalytically inactive additive is independently selected from anions having at least two or more negative charges including ~~which may be~~ organic anions, inorganic anions, or a compound containing at least one substituent ~~radical from~~ form O, N, S, Se, Te, P, As, Sb, Bi, Si, olefin, and carbene that have ~~having~~ attached thereto an oxy, alkyl, aryl, arylalkyl, alkylaryl, alkoxy-aleoxy, aryloxy-aryloxy, or cycloalkyl group bearing at least one or more negatively charged functional groups independently selected from -SO₃⁻,

$-\text{SO}_2^-$, $-\text{PO}_3^{2-}$, $-\text{COO}^-$, $-\text{O}^-$, AsO_3^{2-} and $-\text{S}^-$;

wherein the catalytically active entity is independently selected from metal complexes, quaternary compounds, metal oxo anions and polyoxometallates and ~~or~~ combinations thereof,

wherein the metal complexes have ~~having~~ a general formula



wherein M is a catalytic metal atom or an ion of coordination complex and is a transition metal selected from group IIIB, IVB, VB, VIB, VIIB, IB and ~~or~~ IIB of the periodic table of elements, x is from 1 to 60, L is an aliphatic, aromatic or ~~and~~ heterocyclic compound ~~compounds~~ containing at least one substituent radical from O, N, S, Se, Te, P, As, Sb, Bi, Si, olefin, and carbene that have ~~having~~ attached thereto an oxy, alkyl, aryl, arylalkyl, alkylaryl, alkoxy-aleoxy, aryloxy-aryloxy, or cycloalkyl group bearing at least one or more negatively charged functional groups independently selected from $-\text{SO}_3^-$, $-\text{SO}_2^-$, $-\text{PO}_3^{2-}$, $-\text{COO}^-$, $-\text{O}^-$, AsO_3^{2-} and $-\text{S}^-$, y is at least 1, L^* is ~~a radical~~ selected from organic anion, inorganic anion and coordinating compound containing at least one substituent radical from O, N, S, Se, Te, P, As, Sb, Bi, Si, olefin, and carbene that have, ~~=C:~~ ~~having~~ attached thereto an oxy, alkyl, aryl, arylalkyl, alkylaryl, alkoxy-aleoxy, aryloxy-aryloxy, or cycloalkyl group, z is from 0 to 7, and

wherein the quaternary ammonium compound has a general formula



wherein, $I = 4$ for $\text{Y}^+ = \text{N}^+$, P^+ , As^+ ; $I = 3$ for $\text{Y}^+ = \text{S}^+$; and R^* is selected independently from alkyl, aryl, arylalkyl, alkylaryl, alkoxy-aleoxy, aryloxy-aryloxy, or cycloalkyl bearing at least one or more negatively charged functional groups independently selected from $-\text{SO}_3^-$, $-\text{SO}_2^-$, $-\text{PO}_3^{2-}$, $-\text{COO}^-$, $-\text{O}^-$, AsO_3^{2-} and $-\text{S}^-$, and Z is anion selected from organic anion, inorganic anion or coordination complex anion and

_____ wherein the group IIA metal compound is ~~ation are~~ selected from compounds of Ca^{+2} , Sr^{+2} and Ba^{+2} .

99. (Currently Amended) A process as claimed in claim 98 wherein the process is carried out in a ~~the~~ temperature ranging from -70 to 200°C .

100. (Currently Amended) A process as claimed in claim 98 wherein, a ~~the~~ solvent employed to form a solution of the group IIA metal compound ~~ion~~ is aqueous, water miscible organic or a mixture thereof.

101. (Currently Amended) A process as claimed in claim 98 wherein, the solvent ~~employed is~~ water immiscible organic solvent has a, ~~having~~ boiling point in a ~~the~~ range of 40 to 200°C .

102. (Currently Amended) A process as claimed in claim 98 wherein, the solid composite catalyst is recovered by centrifugation, decantation, or gravity settling, ~~or other techniques of solid liquid separation~~ and solids are dried subsequently in a vacuum.

103. (Currently Amended) A process for the preparation of a heterogeneous catalytic formulation as a solid composite comprising fluidizing a porous solid support in a ~~flow the current of gases~~ ~~gases~~ and spraying a solution of a catalytically active entity and a catalytically inert additive ~~in such a way that the catalytically active entity and the catalytically inert additive are deposited on the porous solid support, wherein the fluidizing fluidization of solid~~ is continued for 1 to 48 hours, and subsequently spraying a solution of a group IIA metal compound, ~~is subsequently sprayed and fluidizing fluidization of solid~~ is further continued for 1 to 48 hours, and recovering solids ~~are recovered~~,

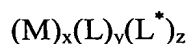
_____ wherein, the porous solid support is a mechanically robust and thermally stable solid in reaction media selected from organic, aqueous, fluoruous, non-aqueous ionic liquids and supercritical fluid phases, has ~~having~~ a mean pore diameter in the range of about $70\text{-}3000 \text{ \AA}^0$

and is in a form of ~~existing as~~ powder, granules, flakes or ~~pellets~~ ~~pallets~~ of regular or irregular shapes, sheets, monolith, ropes or ~~and~~ woven fabric of fibrous solids and

wherein the catalytically ~~inert~~ ~~inactive~~ additive is independently selected from anions having at least two or more negative charges including ~~which may be~~ organic anions, inorganic anions, or a compound containing at least one radical from ~~form~~ O, N, S, Se, Te, P, As, Sb, Bi, Si, olefin, and carbene that have ~~having~~ attached thereto an oxy, alkyl, aryl, arylalkyl, alkylaryl, alkoxy-aleoxy, aryloxy-aryloxy, or cycloalkyl group bearing at least one or more negatively charged functional groups independently selected from $-\text{SO}_3^-$, $-\text{SO}_2^-$, $-\text{PO}_3^{2-}$, $-\text{COO}^-$, $-\text{O}^-$, AsO_3^{2-} and $-\text{S}^-$;

wherein the catalytically active entity is independently selected from metal complexes, quaternary compounds, metal oxo anions and polyoxometallates and ~~or~~ combinations thereof,

wherein the metal complexes have ~~having~~ a general formula



wherein M is a catalytic metal atom or an ion of coordination complex and is a transition metal selected from group IIIB, IVB, VB, VIB, VIIB, IB and ~~or~~ IIB of the periodic table of elements, x is from 1 to 60, L is an aliphatic, aromatic or ~~and~~ heterocyclic compound ~~compounds~~ containing at least one substituent ~~radical~~ from O, N, S, Se, Te, P, As, Sb, Bi, Si, olefin, and carbene that have ~~having~~ attached thereto an oxy, alkyl, aryl, arylalkyl, alkylaryl, alkoxy-aleoxy, aryloxy-aryloxy, or cycloalkyl group bearing at least one or more negatively charged functional groups independently selected from $-\text{SO}_3^-$, $-\text{SO}_2^-$, $-\text{PO}_3^{2-}$, $-\text{COO}^-$, $-\text{O}^-$, AsO_3^{2-} and $-\text{S}^-$, y is at least 1, L^* is ~~a radical~~ selected from organic anion, inorganic anion and coordinating compound containing at least one substituent ~~radical~~ from O, N, S, Se, Te, P, As, Sb, Bi, Si, olefin, and carbene that have, $=\text{C}:$ ~~having~~ attached thereto an oxy, alkyl, aryl, arylalkyl, alkylaryl, alkoxy-aleoxy, aryloxy-aryloxy, or cycloalkyl group, z is from 0 to 7, and

wherein the quaternary ammonium compound has a general formula



wherein; I = 4 for $Y^+ = N^+, P^+, As^+$; I = 3 for $Y^+ = S^+$ and R^* is selected independently from alkyl, aryl, arylalkyl, alkylaryl, ~~alkoxy-aleoxy~~, ~~aryloxy-aryloxy~~, or cycloalkyl bearing at least one or more negatively charged functional groups independently selected from $-SO_3^-$, $-SO_2^-$, $-PO_3^{2-}$, $-COO^-$, $-O^-$, AsO_3^{2-} and $-S^-$, and Z is an anion selected from organic anion, inorganic anion or coordination complex anion, and

wherein the group IIA metal compound includes a cation ~~are~~ selected from ~~compounds of~~ Ca^{+2} , Sr^{+2} and Ba^{+2} .

104. (Currently Amended) A process as claimed in claim 103 wherein the process is carried out in a ~~the~~ temperature ranging from -70 to 200^0C .

105. (Currently Amended) A process as claimed in claim 103 wherein; the solvent employed to form a solution of the group IIA metal compound ~~is~~ is aqueous, water miscible organic or a mixture thereof.

106. (Currently Amended) A process for the preparation of a heterogeneous catalytic formulation as a solid composite comprising ~~of~~ tumbling a porous solid support in a ~~the~~ rotating pan under a flow current of gases-gasses, spraying a solution of a catalytically active entity and a catalytically inert additive ~~is sprayed in such a way that the catalytically active entity and the catalytically inert additive are deposited on the porous solid support, the tumbling of solid is continued~~ continuing for 1 to 48 hours, and subsequently spraying a solution of a group IIA metal compound, ~~is subsequently sprayed and then~~ tumbling ~~of solid~~ is further continued for 1 to 48 hours, and solids are recovered,

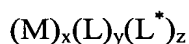
wherein the porous solid support is a mechanically robust and thermally stable solid in reaction media selected from organic, aqueous, fluoruous, non-aqueous ionic liquids and supercritical fluid phases, has ~~having~~ a mean pore diameter in the range of about $70-3000 \text{ \AA}^0$

and is in a form of ~~existing as~~ powder, granules, flakes or ~~pellets~~ ~~pallets~~ of regular or irregular shapes, sheets, monolith, ropes or ~~and~~ woven fabric of fibrous solids and

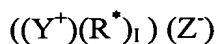
wherein the catalytically ~~inert~~ ~~inactive~~ additive is independently selected from anions having at least two or more negative charges including ~~which may be~~ organic anions, inorganic anions, or a compound containing at least one substituent ~~radical from~~ ~~form~~ O, N, S, Se, Te, P, As, Sb, Bi, Si, olefin, and carbene that have ~~having~~ attached thereto an oxy, alkyl, aryl, arylalkyl, alkylaryl, alkoxy ~~aleoxy~~, aryloxy ~~arlyoxy~~, or cycloalkyl group bearing at least one or more negatively charged functional groups independently selected from $-\text{SO}_3^-$, $-\text{SO}_2^-$, $-\text{PO}_3^{2-}$, $-\text{COO}^-$, $-\text{O}^-$, AsO_3^{2-} and $-\text{S}^-$;

wherein the catalytically active entity is independently selected from metal complexes, quaternary compounds, metal oxo anions and polyoxometallates and ~~or~~ combinations thereof,

wherein the metal complexes have ~~having~~ a general formula



wherein M is a catalytic metal atom or an ion of coordination complex and is a transition metal selected from group IIIB, IVB, VB, VIB, VIIB, IB and ~~or~~ IIB of the periodic table of elements, x is from 1 to 60, L is an aliphatic, aromatic or ~~and~~ heterocyclic compound ~~compounds~~ containing at least one substituent ~~radical from~~ O, N, S, Se, Te, P, As, Sb, Bi, Si, olefin, and carbene that have ~~having~~ attached thereto an oxy, alkyl, aryl, arylalkyl, alkylaryl, alkoxy ~~aleoxy~~, arlyoxy, or cycloalkyl group bearing at least one or more negatively charged functional groups independently selected from $-\text{SO}_3^-$, $-\text{SO}_2^-$, $-\text{PO}_3^{2-}$, $-\text{COO}^-$, $-\text{O}^-$, AsO_3^{2-} and $-\text{S}^-$, y is at least 1, L^* is ~~a radical~~ selected from organic anion, inorganic anion and coordinating compound containing at least one substituent ~~radical from~~ O, N, S, Se, Te, P, As, Sb, Bi, Si, olefin, and carbene that have, $-\text{C}^-$ ~~having~~ attached thereto an oxy, alkyl, aryl, arylalkyl, alkylaryl, alkoxy ~~aleoxy~~, aryloxy ~~arlyoxy~~, or cycloalkyl group, z is from 0 to 7 and wherein the quaternary ammonium compound has a general formula



wherein, $I = 4$ for $Y^+ = N^+, P^+, As^+$; $I = 3$ for $Y^+ = S^+$ and R^* is selected independently from alkyl, aryl, arylalkyl, alkylaryl, ~~alkoxy-aleoxy~~, ~~aryloxy-aryloxy~~, or cycloalkyl bearing at least one or more negatively charged functional groups independently selected from $-SO_3^-$, $-SO_2^-$, $-PO_3^{2-}$, $-COO^-$, $-O^-$, AsO_3^{2-} and $-S^-$, and Z is anion selected from organic anion, inorganic anion or coordination complex anion and

wherein the group IIA metal compound includes a cation ~~are selected from compounds of~~ Ca^{+2} , Sr^{+2} and Ba^{+2} .

107. (Currently Amended) A process as claimed in claim 106 wherein the process is carried out in a ~~the~~ temperature ranging from -70 to 200^0C .

108. (Currently Amended) A process as claimed in claim 106 wherein, a ~~the~~ solvent employed to form the solutions is aqueous, water miscible organic or a mixture thereof.

109. (Currently Amended) A process as claimed in claim 106 wherein, the solutions are sprayed simultaneously or sequentially.

110. (Canceled).